and a plurality of lens' 52, 56, and 67. Different filter positions, or no filters at all, may increase or eliminate the need for certain light diverting prisms and lens'.

What is claimed is:

09681581.101701

1. An apparatus for testing a sample of biologic fluid quiescently residing within a chamber, said apparatus comprising:

a field illuminator for selectively illuminating a field of the sample, said field having a known or ascertainable area;

a positioner, which is operable to selectively change the position of one of the chamber or said field illuminator relative to the other of the chamber or said field illuminator, thereby permitting selective illumination of a plurality of said sample fields within the chamber;

means for determining one of a through-plane thickness or a volume of each said sample field; and

an image dissector, for converting an image of light passing through or emanating from each said field of the sample into an electronic data format useful for test purposes.

2. An apparatus according to claim 1, further comprising means for retrieving information concerning the chamber which information is used in the performance of one or more tests on the biologic fluid sample by said apparatus.

3. An apparatus according to claim 2, wherein said means for retrieving information includes a label reader for reading a label relating to the chamber.

4. An apparatus according to claim 3, wherein said label reader optically reads labels.

5. An apparatus according to claim 3, wherein said label reader magnetically reads labels.

6. An apparatus according to claim 3, further comprising:

a programmable analyzer having a central processing unit;

wherein said label reader transfers said information to said programmable analyzer, and said programmable analyzer interprets said information, identifying said one or more tests to be performed on the biologic fluid sample.

7. An apparatus according to claim 6, wherein said programmable analyzer contains a plurality of instructions for performing said one or more tests.

8. An apparatus according to claim 7, wherein said plurality of instructions are contained remote from said programmable analyzer and are accessed through said programmable analyzer.

9. An apparatus according to claim 7, wherein said plurality of instructions includes means for controlling said field illuminator and said positioner.

10. An apparatus according to claim 9, wherein said positioner includes means for spatially locating said chamber relative to said field illuminator;

wherein said means for spatially locating said chamber relative to said field illuminator enables said field illuminator to be aligned with any particular spatial location within said chamber.

11. An apparatus according to claim 10, wherein a coordinate address is used to describe particular spatial locations within said chamber.

12. An apparatus according to claim 11, wherein said information retrieved by said label reader relates to features within the chamber.

13. An apparatus according to claim 1, wherein said field illuminator comprises:

a light source which produces light within a wavelength range broad enough to be useful for a plurality of tests on the biologic fluid sample; and

an assembly of objective optics, wherein said optics direct light emanating from said sample field or transmitted through said sample field into a known or ascertainable area image of light on said image dissector.

14. An apparatus according to claim 13, wherein said assembly of objective optics comprises:

an objective lens;

a focusing mechanism, said mechanism for selectively adjusting the position of said objective lens relative to the chamber; and

a light filter for blocking or passing certain wavelengths of said light;

wherein other wavelengths of said light emanating from said light source pass through said objective lens and said light filter and into said image dissector, or are blocked, respectively.

15. An apparatus according to claim 14, wherein said field illuminator directs light into said sample within the chamber and collects light fluorescing out of said sample.

16. An apparatus according to claim 15, wherein said light filter comprises:

a plurality of light source excitation filters;

a plurality of sample emission filters;

wherein said light source excitation filters block selected wavelengths of said light emanating from said light source and said sample emission filters block selected wavelengths of said light fluorescing out of said sample.

17. An apparatus according to claim 16, wherein said light source excitation filters are mounted on a first wheel and said sample emission filters are mounted on a second wheel and both said filters are rotatable into and out of a path of said light; and

wherein said field illuminator further comprises means for synchronizing said first wheel and said second wheel such that all desirable combinations of said light source excitation filters and said sample emission filters can be used during said tests.

18. An apparatus according to claim 16, wherein said field illuminator further comprises:

a light diverting prism; and

a reference detector having means for quantifying an energy level of said light emanating from said light source, wherein said quantified energy level is selectively used in evaluating said light fluorescing out of said sample.

19. An apparatus according to claim 14, wherein said field illuminator directs light into said chamber containing said sample and collects light produced by transmittance passing through said sample.

20. An apparatus according to claim 19, wherein said light filter comprises:

a plurality of light source excitation filters;

a plurality of sample emission filters;

wherein said light source excitation filters block wavelengths of said light emanating from said light source and said sample emission filters block wavelengths of said light emanating from said sample.

21. (Amended) An apparatus according to claim 20, wherein said light source excitation filters are mounted on a first wheel and said sample emission filters are mounted on a second

wheel and both said wheels permit rotation of said filters into and out of a path of said light; and wherein said field illuminator further comprises means for synchronizing said first wheel and said second wheel such that all desirable combinations of said light source excitation filters and said sample emission filters can be used during said tests.

22. An apparatus according to claim 21, wherein said field illuminator further comprises: a light diverting prism; and a reference detector having means for quantifying an energy level of said light emanating from said light source, wherein said quantified energy level is selectively used in evaluating said light emanating from said sample by fluorescence.

23. An apparatus according to claim 2, wherein said means for determining one of said through-plane thickness or said volume of said sample field includes said information retrieving means retrieving information from a label concerning the chamber which information includes one of said through-plane thickness of said sample field or said volume of said sample field.

25. An apparatus for testing a sample of biologic fluid, said apparatus comprising:

(a) a disposable container having a label and a chamber for quiescently holding the sample, said label containing information which is used in the performance of one or more tests on the biologic fluid sample quiescently residing within said chamber;

(b) a reader module which receives said disposable container, said reader module including:

a label reader for reading said attached label, and thereby accessing said information;

a field illuminator for selectively illuminating a field of the sample, said sample field having a known or ascertainable area;

a positioner, which is operable to selectively change the position of one of said chamber or said field illuminator relative to the other of said chamber or said field illuminator, thereby permitting selective illumination of a plurality of said sample fields within said chamber; and

means for spatially locating said chamber relative to said field illuminator;

wherein said means for spatially locating said chamber relative to said field illuminator enables said field illuminator to be aligned with a particular spatial location within said chamber.

26. An apparatus according to claim 25, wherein said reader module further comprises:

an image dissector, for converting an image of light passing through or emanating from each said sample field into an electronic data format useful for test purposes.

27. (Amended) An apparatus according to claim 26, wherein said reader module further comprises:

means for determining one of a through-plane thickness or a volume of said sample field.

28) An apparatus according to claim 27, further comprising:

a programmable analyzer having a central processing unit;

wherein said label reader transfers said information to said programmable analyzer, and said programmable analyzer interprets said information, identifying said one or more tests to be performed on the biologic fluid sample.

29. An apparatus according to claim 28, wherein said programmable analyzer contains a plurality of instructions for performing said one or more tests.

30. An apparatus according to claim 29, wherein said plurality of instructions are contained remote from said programmable analyzer and are accessed through said programmable analyzer.

30. (Amended) An apparatus according to claim 25, wherein said reader module further comprises:

means for determining one of a through-plane thickness or a volume of said sample field.

41. An apparatus for testing a sample of biologic fluid, said apparatus comprising:

a container having a chamber for quiescently holding the sample during the test, one or more features operable to enable the testing of the sample, wherein at least one of the one or more features is positioned at a known spatial location within the chamber, and a label containing information which is used in the performance of one or more tests on the sample, wherein the information includes the spatial location of the at least one feature located within the chamber; and

a reader module operable to perform the testing of the sample, wherein the reader module includes:

a label reader for reading the label, and thereby accessing the information including the spatial location of the at least one feature located within the chamber;

a field illuminator for selectively illuminating a field of the sample quiescently residing within the chamber, wherein the sample field has a known or ascertainable area; and

a positioner, which is operable to selectively change the position of one of the chamber or the field illuminator relative to the other of the chamber or the field illuminator, to align the field illuminator with a field of the sample in which the at least one feature at a known spatial location within the chamber is positioned.

42. The apparatus of claim 41, wherein the reader module further comprises:

an image dissector, for converting an image of light passing through or emanating from each sample field into an electronic data format useful for test purposes.

43. The apparatus of claim 41, wherein the reader module further comprises:

means for determining one of a through-plane thickness or a volume of the sample field.

44. The apparatus of claim 41, further comprising means for determining one of a through-plane thickness or a volume of the sample field.

45. An apparatus for testing a sample of biologic fluid, said apparatus comprising:

a container having a chamber for quiescently holding the sample during the test, and one or more features operable to enable the testing of the sample, wherein at least one of the one or more features is positioned at a known spatial location within the chamber; and

a reader module operable to perform the testing of the sample, wherein the reader module includes a field illuminator for selectively illuminating a field of the sample quiescently residing within the chamber during the test, and a positioner that is operable to selectively change the position of one of the chamber or the field illuminator relative to the other of the chamber or the field illuminator, to align the field illuminator with the field of the sample in which the at least one feature at the known spatial location within the chamber is positioned.

46. The apparatus of claim 45, further comprising means for determining one of a through-plane thickness or a volume of the sample field.